GENETICS OF CANCER

- COULD CANCER BE RUNNING IN MY FAMILY?
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UCI-UCSD CANCER GENETICS NETWORK CENTER

Could Cancer Be Running In My Family?

■ Because cancer is fairly common, it is not unusual for several people in a family to have had cancer. About 10-15% of people with cancer have other affected relatives.

■ Cancer can occur in several family members for many reasons, not all of them genetic. Families share not only their genes, but may have other similar health risks that can increase their risk for cancer. Such risks include occupational exposures, diet, smoking, infections, or other environmental hazards.

■ When a number of family members have had the same or related cancers, when people in two or more generations have had cancer, or when cancer in the family has occurred earlier than usual, there may be a greater likelihood that the risk for cancer is hereditary.

■ Several genes have now been found that predispose individuals to certain cancers in some families. It is likely that many more "cancer risk genes" will be discovered, particularly for common cancers, like breast, colon, or prostate cancer.

How is Cancer Risk Inherited?

● About 5-10% of people with cancer have inherited from one of their parents a gene change (mutation) that increases cancer risk. This type of hereditary risk for cancer usually comes from just one side of the family.

● Hereditary cancers are often caused by an inherited mutation in a gene whose normal function is to control the growth of certain cells. A person who inherits this mutation will have an increased risk of cancer but may never actually get cancer, since additional genetic changes usually have to occur in a cell before cancer starts.

● Most genes come in pairs, and we receive one member of a gene pair from each of our parents. A person who inherits a mutation in a "cancer risk gene" from one parent almost always gets a normal copy of this gene from the other parent.

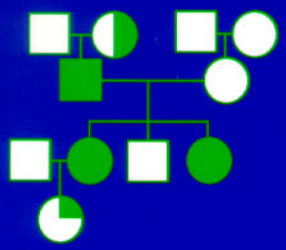
● In the same way, we pass on only one member of each gene pair to each of our children. So, a person who carries a mutation in a "cancer risk gene" has only a 50:50 chance to pass it to each child. Those who don't inherit the mutation cannot pass it to the next generation.

● Family members who don't inherit a mutation in a "cancer risk gene" can still get cancer for other reasons, but they have no higher chance than someone without a family history of cancer.

How are "cancer risk genes" found?

- Most "cancer risk genes" have been found by studying large families with similar cancer histories. Many of these families are identified through cancer registries set up to learn more about the incidence and causes of cancer in the population.
- The Cancer Genetics Network is a consortium of academic centers in the United States who are collaborating to identify individuals and families who may have an inherited risk for cancer. People who enroll in the Cancer Genetics Network may be invited to participate in research about genetic or other causes of cancer.

What should I know about my family's cancer history?



There are many clues in your family history that may help determine if cancer could be due to an inherited risk. Important things to know are:

- Who in the family has had cancer (including immediate family, grandparents, aunts, uncles and cousins from both sides of the family)
- What type(s) of cancer they had and where the cancer started
- How old a person was when their cancer was first diagnosed
- Other unusual physical features or health problems in individuals with cancer
- If anyone ever had a genetic evaluation for cancer or for any other reason
- Current ages, or ages and causes of death for unaffected family members
- Your family's ethnic origins and religious background (some genetic conditions occur more frequently in certain population groups)

How can I find out if cancer in my family might be due to an inherited risk?

- By enrolling in the Cancer Genetics Network, you are entitled to attend an educational session about genetics and cancer. These sessions are conducted by a genetic counselor to provide information about the genetics of cancer, features of inherited cancers, and genetic tests that can help clarify risks.
- The educational session may help you to decide if you or your family would benefit from an individual genetics consultation. If so, a referral for further genetic evaluation can be obtained through the Cancer Genetics Network.

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For further information or to sign up for a cancer genetics educational session, call 949/824-7401. Collect calls are accepted.

Thank you again for your interest and participation in this very exciting Network.

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